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Palms & Cycads

Palms and cycads are truly beautiful plants that enhance any landscape with their tropical appearance. In South Carolina, they are fairly tolerant of many problems that are common in tropical areas farther south. For more information about palms, refer to HGIC 2007, Palm Diseases & Nutritional Problems.

Landscape Use

Palms and cycads are very versatile in the landscape. Some types of palms have a single trunk and can be used as solitary specimen plants while others are clumping and are used in groups. Grouping together palms of the same species or with plants other than palms makes an interesting tropical landscape. Multi-trunk palms make excellent specimen or accent plants.

Cycads can also make wonderful specimen plants or can be used along with palms or many other plants to create a tropical landscape. In South Carolina, the sago palm (*Cycas revoluta*) is grown in the eastern part of the state. Although palm-like in appearance, sago palms are not true palms but are primitive plants called cycads. They grow slowly and can be easily overgrown by other nearby plants in the landscape, if not provided adequate spacing.

Culture

Planting: It is best to transplant young palms from containers, since they are not very tolerant of root disturbance until visible trunk development has taken place. Palms establish most quickly if transplanted during the spring and early summer when the soil temperatures are on the increase. This is the time of active root activity for this tree.

Soil conditions in some parts of South Carolina are less than ideal for growing palms and cycads. The ideal situation is to have the entire planting area uniformly rich in organic material and well-drained with slightly acidic soil. Begin a regular fertilization program when the appearance of new leaves indicates that establishment has been successful.

Watering: Water the palm deeply and thoroughly immediately after planting. The root ball and surrounding backfill should remain evenly moist, but never saturated during the first four to six months after installation. A slight berm can be mounded up around the edge of the root ball to retain water during irrigation. Supplemental irrigation is necessary unless adequate rainfall is received during this period. Remember that it is important to have good drainage and not to overwater.

Most established palms and cycads require water during the summer, which is the period of their active growth. Apply mulch around the trunk, keeping a small circle (several inches) around the trunk free of mulch. Mulching helps to conserve moisture and reduce weeds.

Fertilizing: Palms may fail to thrive without a regular, balanced fertilization program. Mature palms in the landscape should optimally receive a granular fertilizer formulated for palms ("palm special ") that contains additional magnesium and a complete micronutrient amendment. Nitrogen and potassium rates should be equivalent and all or at least some of the elements should be available in slow-release form. These "palm specials " are especially recommended for palms growing on the outer coastal plain where micronutrient deficiencies are common. Other trees and shrubs sharing soil with palms would also benefit from this fertilizer.

A steady supply of nutrients should be added to palms during the growing season (April-September). Florida research has shown that appropriate analysis for a palm fertilizer is a 12-4-12-4. These fertilizer numbers refer to the nitrogen (N), phosphorus (P), potassium (K), and magnesium (Mg) content.

Fertilizers should be broadcast over the area below the palm canopy. Palm roots will eventually extend 30 to 50 feet or more from the trunk and will take up whatever fertilizer has been applied to the surrounding turfgrass, often with detrimental results to the palm. Turfgrass fertilizers typically have high N:K ratios and contain little magnesium or micronutrients. This high N can promote growth in the palms that is not supported by K levels in the soil or fertilizer. The result is that K within the palms is diluted by this new growth, making the K deficiency worse than if no fertilizer had been applied.

Therefore, it is recommended that if turfgrass growing within 30 feet of a palm is to be fertilized, it should receive the 12-4-12-4 fertilizer rather than a fertilizer designed for turfgrass. Presently three to four applications are recommended at a rate of 1.5 pounds per 100 square feet or 15 pounds per 1,000 square feet. As much of the N, K, and Mg in the fertilizer as possible should be in a slow-release form to supply a balance of nutrients over a longer time.

Most coastal turfgrass fertility needs are met with the above recommendation; however rates should be reduced for centipedegrass. If centipedegrass is grown within 30 feet of a palm being fertilized, it is recommended that the rate be reduced to no more than three applications at a rate of 1 pound of 12-4-12-4 per 100 square feet or 10 pounds per 1,000 square feet.

For palms in the Piedmont, apply fertilizer in three applications. In heavy clay soils use half the above amount of fertilizer, and do not apply granular fertilizers after August 1.

Adjustments for rates and distances will have to be made for newly planted palms. Newly planted palms should not be fertilized until they put out a new spear. Two to three months after transplanting, a slow-release palm fertilizer can be applied to the soil around the outside margin of the root ball.

Be sure to fertilize only during the growing season (between April 1 and August 1). Broadcast or scatter the fertilizer under the entire canopy. Do not apply it in a ring around the base of the tree or up against the trunk. Concentrating the fertilizer in a narrow area can burn the roots and only a small portion of the roots will come in contact with it.

Transplanting: Palms establish most quickly if transplanted during the spring and early summer when soil temperatures are on the increase. Young palms, without visible trunk development, are not very tolerant of root disturbance and are best transplanted only from containers.

It is best to immediately install field-grown palms as soon as they arrive. If transplanting cannot take place immediately, palms should be partially planted or "heeled in" and kept well watered. It is generally recommended that no soil amendments be added to the backfill when planting.

It is very important not to plant palms any deeper than they were originally grown. The root initiation zone, located at the base of the trunk, must remain at the soil level or slightly higher to prevent root suffocation, nutritional deficiencies and root rot diseases. It may take several years for palms planted too deeply to show noticeable decline, especially on well drained soils. This decline can only be reversed by removing the backfill from the suffocated root initiation zone or replanting the palm. All air pockets should be lightly tamped out of the backfill as the planting hole is filled (do not compact the soil).

The root ball and surrounding backfill should remain evenly moist for the first six to eight months after installation. The number one reason for death of newly planted palms is poor watering practices. Water frequently enough to keep the soil moist during plant establishment, and always water deeply. The appearance of substantial amounts of new leaves indicates that establishment is successful. Supplement with 1" of irrigation water per week during periods of little or no rainfall.

One of the most important practices to improve the health of a tree is to apply mulch. A palm is no

exception. A layer of mulch 2 to 3 inches deep should be applied at a minimum of three feet from the trunk. The mulch should not be mounded like a volcano, but flat like a pancake. Mulch should not touch the base of the trunk.

Care of the Bud & Fronds: The greatest loss of water in newly dug palms occurs from transpiration through the leaves. Minimize this problem by removing one half or more of the older leaves at the time of digging. Tie the remaining leaves together in a bundle around the bud with biodegradable twine.

Some types of palms like the sabal palm need special treatment, since they must regenerate all new roots from the trunk. For these cases, the best method of ensuring survival after transplanting may be to remove all the leaves. Complete leaf removal may also be advisable during installation of any species where normal post-transplant irrigation is impossible. Be careful not to injure the bud. Where practical, misting or irrigation of the foliage may reduce water loss during the transplant process, though there is a risk of increasing disease problems in the canopy.

Support: It is a good idea to correctly support newly planted palms in hurricane prone areas. Larger palms will require some form of bracing to maintain stability during the first six to eight months after installation. Three equidistantly-spaced braces are used to support the palm.

To brace the palm tree, three 12 inch lengths of 2 by 4 inch boards are positioned vertically on the trunk at one third the height of the palm. Five layers of folded burlap are placed beneath each board to minimize any trunk damage, and two nylon straps are used to hold the boards in place against the trunk. Three standard 2 by 4 boards are leaned against the trunk at a 45 degree angle, and the ends nailed or screwed into the short boards that are held against the trunk. Under no circumstances should nails be driven into a palm trunk. Such damage is permanent, and provides entryway for pathogens and possibly insect pests as well. The ends of the three support boards must be securely staked to the ground.

Pruning Palms: As indicated in many deficiencies, the damaged foliage may not recover, but the new growth in the bud should demonstrate good health if this fertility program is maintained. If a palm is deficient in nutrients K and Mg, removing unattractive lower leaves of deficient palms will cause the potassium (K) deficiency symptoms to move up to the next tier of leaves, making the problem worse. Only remove completely dead and loose leaves, badly damaged or diseased leaves and fruit, and flower stalks when pruning a palm. If the petiole (the base of the leaf stem or stalk) is green, the leaf is not dead.& Never remove leaves at an angle above the horizontal (9:00 & 3:00). This will give the palm a "lion's tail" appearance. There is also evidence that over trimming makes the palm more susceptible to cold damage. Cut leaf bases close, but not into the trunk. Do not attempt to tear off leaves. This causes wounds that can lead to disease or insect infestation.

Types of Palms

One of the critical factors that determines where palms and cycads can be grown in South Carolina is their cold hardiness. Most of the palms listed below can be grown a half zone colder than that listed, if provided with protection during the winter, such as a wind block and adequate mulch. Expect some cold damage to occur in severe winters to all but the hardiest of palms.

Needle Palm (*Rhapidophyllum hystrix*): Needle palms are truly beautiful native plants that occur naturally in river floodplains of the Southeast, mostly below the fall line. They are rare to the point of endangerment and are often found growing over limestone. They are a clumping understory palm with many palmate, deep-green leaves that have silvery undersides. Numerous very sharp needles protect the crown of the plant, hence its name, needle palm.

Needle palm is a very adaptable palm. It is considered the world's hardiest palm, and large, established specimens in good sites can easily take short periods of -5 °F. New growth is damaged at -10 °F. Fifteen degrees below zero is usually fatal, although plants have been known to recover from this temperature. Needle palm is hardy in all areas of South Carolina.

Native needle palm.
Ted Bodner, Southern Weed Science Society, www.ipmimages.org

Needle palms can be used in clumps or as single specimens. The typical size of the clump is about 5 feet high and wide, although it can eventually reach 10 feet high and wide. The growth rate is slow. They grow best in light shade with adequate moisture and are not very tolerant of salt spray.

Dwarf Palmetto (*Sabal minor*): This palm appears to be a clumping type of palm, but it actually has a trunk that is either very short or below the ground. Unlike the saw palmetto, the dwarf palmetto does not have spiny leaf stems and does not spread over a large area. The fan-shaped foliage of this dwarf palm may be green to a bluish-gray. There are usually no more than a half dozen leaves on a single plant. They differ from the leaves of other native dwarf palms by having a split 'V' right in the middle. The native habitat is similar to the needle palm, but the dwarf palmetto is much more common. The usual size is 4 to 5 feet high and wide and the growth rate is slow.

The dwarf palmetto is hardy in all areas of South Carolina. It is almost impossible to transplant, therefore it is best to use container-grown plants. It will tolerate some salt spray.

Windmill Palm (*Trachycarpus fortunei*): These palms have a single, slender (1 foot or less in diameter) trunk with fan-shaped leaves similar to the needle palm. Leaves are dark green and can be 2 to 3 feet across. The trunk of this palm is brown and is usually covered with a burlap-like substance. The trunk is often wider at the top than the bottom. The average height in our area is 20 feet and the growth rate is moderate to somewhat fast. Under good growing conditions this palm can grow 1 to 2 feet per year.

Windmill palms are one of the most cold hardy of palms and are hardy in South Carolina from zones 7b to 8b. In the Southeast, this palm grows best in light to medium shade. It must have some shade in zone 8b. Prefers a rich, fertile, loamy soil, but will tolerate most types of soil. The windmill palm grows best with ample water, but will not tolerate standing water or a high water table. Windmill palms cannot take direct salt spray.

Cabbage Palm or Palmetto (*Sabal palmetto*): The cabbage palm is the state tree of South Carolina and is commonly seen near coastal areas. It has large, blue-green leaves with threadlike strands of fiber hanging off of each leaf. The trunk is massive (can be a foot and a half across) and wild plants retain old leaf-stems (often called "boots") on their trunks in a crisscross pattern. They are common in their native habitat, which ranges on the southeastern coast from southern North Carolina to the northern panhandle of Florida. Their growth rate is usually moderate and a mature height of 30 feet is common in our area

Distinctive leaf bases on cabbage palm
Karen Russ, ©2007 HGIC, Clemson Extension

Cabbage palms prefer full sun to light shade. They are very adaptable to different soil types, but do best in sandy soil with some limestone, such as might be found in old shell-mounds near the beach. They are hardy in South Carolina from zones 7b (protected) to 8b, and do best with ample water. They are very tolerant of salt spray.

Mediterranean or European Fan Palm (*Chamaerops humilis*): This palm is a small, clumping fan palm with stiff leaves and spiny leaf stems. The growth rate is slow, and in the Southeast a height of 5 feet is common. They are hardy in South Carolina from zones 8a to 8b. Plant this palm in full sun to light shade. They need well-drained soil and will thrive on a site with limestone. Once this palm is established it is extremely drought-tolerant.

Mediterranean or European Fan Palm
Karen Russ, ©2007 HGIC, Clemson Extension

Saw Palmetto, Scrub Palm (*Serenoa repens*): Saw palmettos are native to coastal areas of the Southeast and most areas of Florida. They are a low, spreading, fan-type palm with stiff leaves and saw-tooth-like leaf stems. The trunks usually creep along the ground, rooting and branching as they grow. In coastal regions, they are an aggressive spreader.

Saw palmettos grow best in a location that has full sun or very light shade and is well-drained. They are hardy in South Carolina from zones 8a to 8b. They tolerate salt spray and are drought-hardy once established.

Jelly Palm, Pindo Palm (*Butia capitata*): This is the most commonly cultivated exotic palm in the Southeast. It is a feather-type palm with gray-green to blue-green fronds 6 to 8 feet long and a massive trunk up to a foot and a half across. Ten to 20 feet is a common height and the growth rate is slow to moderate. This palm is not quite as hardy as the palmetto palm and requires winter protection below 15 ºF. They are hardy in South Carolina from zones 8a to 8b. They grow best in full sun in a location that is well-drained. They are reasonably drought-hardy once established and will tolerate some salt spray.

Jelly Palm
Karen Russ, ©2007 HGIC, Clemson Extension

California Fan Palm (*Washingtonia filifera*): This palm can be truly immense and fast-growing. In warm climates plants can grow up to 100 feet tall. No plants have been grown to this size in the Southeast. The trunk can be up to 2 feet across. Leaves are yellow-green and palmate with spiny stems. In South Carolina this palm is considered hardy in zone 8b and marginally hardy in zone 8a. The large size and fast growth rate require special consideration in the landscape. It has moderate salt tolerance.

Mexican Fan Palm (*Washingtonia robusta*): This palm is native to Baja California and greatly resembles the California fan palm when young. The Mexican fan palm however, has a slender trunk usually less than one foot across. Although the Mexican fan palm grows reasonably well in zone 8b, a better choice for most of the Southeast would probably be a hybrid of the two species known as *Washingtonia x filibusta.*

Cycads

Cycads are considered to be "living fossils," that is, they are primitive plants that were a dominant form of plant life during the dinosaur era. They are palm-like in appearance, although unrelated to palms. The sago palm is one of the most popular types of cyads grown.

Sago Palm (*Cycas revoluta*): Sago palms are evergreen plants with stiff, palm-like fronds that radiate outward from a slow-growing usually non-branched trunk. They are very slow-growing and long-lived. It can reach a height of 10 feet, although 3 to 5 feet is more common. Cycads make an excellent accent in sun and shade.

In severe winters the fronds may burn, but new ones follow in the spring. Sago palm is not suitable for use in western South Carolina.

Sago Palm used as an entrance accent plant
Karen Russ, ©2007 HGIC, Clemson Extension

Problems

Nutritional: Palms are very susceptible to nutrient deficiencies of nitrogen, potassium, magnesium and manganese. Symptoms include yellowing, streaking or even spotting of the fronds. Following a regular, balanced fertilization program for palms is important, especially in the sandy regions such as the outer Coastal Plain, where micronutrient deficiencies typically occur. For more information about nutritional deficiencies and how to correct the problems, refer to HGIC 2007, Palm Diseases & Nutritional Problems.

Insects & Diseases: Diseases that may affect palms and cycads include fungal leaf spots and root rots. Common insects that affect palms include spider mites, palm leaf skeletonizers and scale insects. Scale insects and mealybugs commonly attack cycads.

Chemical control of diseases and insects on large trees may not be feasible since adequate coverage of the foliage with a pesticide may not be possible.

Sources:

1. Excerpted with permission from *The Palm Reader-A Manual for Growing Palms Outdoors in the Southeast,* compiled by members of The Southeastern Palm and Exotic Plant Society, 1994©.
2. *Transplanting Palms*, Meerow, A. W. and Broschat, T. K., University of Florida/IFAS, Circular 1047, 1997 (rev.).
3. *Palm Nutrition Guide,* Broschat, T. K. and Meerow, A. W., University of Florida/IFAS, SS-ORH-02, 1992.

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